

### **REMARKS**

In view of the following remarks, the Examiner is requested to allow Claims 1-3-7, 9-11, 14-16 and 28, as well as newly presented Claims 29 to 36, the only claims pending and under examination in this application, after entry of the above amendments.

Claim 1 has been amended to incorporate the elements of previously pending Claims 2, 8, 12 and 13, which have correspondingly been cancelled. In addition, Claim 1 has been amended to further clarify the nature of the first and second polymeric ligands. Support for this amendment may be found on page 40, lines 24 to 33. Claim 1 has also been amended to specify a transferring step between a printing station and a flow cell station, support for this amendment being found at page 28, lines 14 to 26. Support for new Claims 29 to 32 can be found at page 30, lines 1 to 12. New Claims 33 and 34 find support in the specification at page 40, lines 31 to 33. New Claims 35 and 36 find support in the specification at page 28, lines 17 to 26. As no new matter has been added by way of these amendments, entry thereof by the Examiner is respectfully requested.

### ***Rejections - 35 USC § 102 Bass***

Claims 1-4, 12-13 and 28 have been rejected under 35 U.S.C. 102(b) as being anticipated by Bass. Claim 1 has been amended to include the limitations of Claim 8, a claim that is not included in this rejection. In view of this amendment, this rejection may be withdrawn.

The Applicants further note that contrary to the assertion of the Examiner, the property as recited in Claim 1 is not inherent in Bass. The property at issue involves the sequentially contacting at least a portion of the surface with a plurality of different liquids by displacing a previous liquid of said plurality with an immediately subsequent liquid. To establish inherency, the extrinsic evidence "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference."<sup>1</sup> As clear from Fig. 6 and the accompanying descriptions in columns 7-9,

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1 *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999)

the substrate has to be moved by the transporter **60** so that the substrate holder **20** can move between the flood station **68** and the dispenser head **210**. Since the substrate has to be moved to and fro, there is no inherent disclosure that dispensing and flooding would be accomplished by displacing a previous liquid of the plurality with an immediately subsequent liquid, as recited in the rejected claims.

***Rejections - 35 USC § 102 Gamble***

Claims 1-4, 12 and 28 have been rejected under 35 U.S.C. 102(b) as being anticipated by Gamble. Claim 1 has been amended to include the limitations of Claim 8, a claim that is not included in this rejection. In view of this amendment, this rejection may be withdrawn.

***Rejections - 35 USC § 103 Gamble and Anderson***

Claims 1-12, 14-16 and 28 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Gamble in view of Anderson et al. Claim 1 has been amended to include the limitations of Claim 13, a claim that is not included in this rejection. In view of this amendment, this rejection may be withdrawn.

***Rejections - 35 USC § 103 Gamble, Anderson, and Bass***

Claim 13 has been rejected under 35 U.S.C. 103 as being obvious over Gamble in view of Anderson and further in view of Bass. As the limitations of Claim 13 have been incorporated into Claim 1, this rejection will be addressed as it may be applied to Claim 1.

In order to meet its burden in establishing a rejection under 35 U.S.C. § 103 the Office must first demonstrate that the combined prior art references teach or suggest all the claimed limitations.<sup>2</sup>

It is also well established that rejections based on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning to demonstrate that a person of ordinary skill in the art would have been prompted to combine elements in the way a claimed invention does.

See, e.g., *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1740 (2007):

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<sup>2</sup> Federal Register vol. 72, No. 195, Oct 10, 2007. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)

"[A] patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art."<sup>3</sup>

In making this rejection, the Examiner asserts that one of skill in the art would be motivated to modify Gamble to incorporate the sequential liquid flow protocol of Anderson and to modify Gamble to incorporate a pulse jet of Bass in order to arrive at the claimed invention. The Applicants submit that for reasons set forth below that one of skilled in the art would not have combined the cited references in the manner suggested by the Examiner without the hindsight provided in the instant application.

First, the Applicants submit that the Examiner attempts to modify Gamble's and Bass's methods in a way that would either change the principle of operation or, alternatively, render Gamble's and Bass's method inoperable. Briefly, the Examiner proposes to modify "a jetting device along with a reaction chamber" in Gamble's method with a batch reactor or a rotating column of Anderson and to modify Bass's monomer inkjet deposition to the polymer synthesis of Gamble.

This modification of Gamble with Anderson, in itself, would render Gamble's method inoperable because Gamble requires a station for jetting, a reaction chamber for deblocking, and another separate station for drying. This is clear in all the figures in Gamble, specifically Fig. 5 and 9 and in column 5, starting line 66, where Gamble states that "the substrate is cyclically moved between the jetting system and the reaction chamber." As such, Gamble's method is incompatible to be modified with Anderson so that all the reactions take place in an enclosed rotor. For the modification to be operable, the proposed change would essentially convert Gamble's method to one where there are no jet deposits on an addressable array. In other words, the modified method would essentially consist of only the disclosure of Anderson. Under current law, such logic cannot be used to establish a *prima facie* case of obviousness and, as such, this rejection should be withdrawn.

Second, it is respectfully submitted that there is no valid apparent reason, apart from the Applicants' present specification, to modify the teaching of Gamble as

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<sup>3</sup> see also *Pharmastem Therapeutics v. Viacell et al.*, 2007 U.S. App. LEXIS 16245 (Fed. Cir. 2007); *Omegaflex, Inc. v. Parker-Hannifin Corp.*, 2007 U.S. App. LEXIS 14308 (Fed. Cir. 2007) *Dystar Textilfarben GmbH v. C.H. Patrick Co.*, 464 F.3d 1356, 1360 (Fed. Cir. 2006) *In re Kahn*, 441 F.3d 977,985 (Fed. Cir. 2006). *Medichem*, 437 F.3d at 1164. *In re Fulton*, 391 F.3d 1195, 1199-1200 (Fed. Cir. 2004)

asserted by the Examiner in an attempt to read onto the claimed invention. Anderson is directed to batch synthesis protocols where one desires to make large amounts of a single product, e.g., a single nucleotide sequence. Gamble is directed toward a jetting system and a reaction chamber so that a high-density molecular array on a substrate can be produced.

The Examiner asserts that one would be motivated to modify Gamble with Anderson in order to remove washing steps and achieve time savings, as promoted by Anderson. As apparently clear in the summary of invention, "the basic elements" of Gamble's teachings include a positioning system which moves the substrate between the jetting system and the reaction chamber. Gamble further states in the summary that an "advantage of [Gamble's] device is its sparing use of reagents" along with a reliable, automated system (column 2, lines 45-48).

To one skilled in the art, it would be unclear how combining Anderson with Gamble can "eliminate washing" and reduce "waste of time," as asserted by the Examiner. Gamble on its own has the advantage of the "sparing use of reagents." In addition, Anderson's sequential addition of fluid to the batch reactor is taught in the context of flowing multiple fluids sequentially through a single reaction vessel, which fluids include monomeric residues. Anderson teaches a protocol where the substrate is not moved from a first printing station to a second flow cell which generates functional groups. Since there are neither multiple stations nor a positioning system in Anderson, so one would have to eliminate Gamble's "basic elements" in order to accommodate Anderson's teaching.

As such, one of ordinary skill in the art would view Anderson as being directed to a completely different synthesis protocol than the claimed methods, both in terms of the nature of the end product (i.e., an addressable array vs. large amounts of single polymeric ligand) and the manner in which the methods are performed (i.e., a multi-station protocol vs. a batch protocol).

In attempting to establish the rejection, the Examiner cites Bass in attempt to remedy the deficiencies of Gamble and Anderson. Similar to Gamble, Bass is directed to *in situ* fabrication of an addressable array. In Fig. 1 and 2A-2D pointed out by the Examiner in Anderson, solid phase reactions performed on solid support

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such as CPG are retained in suspension inside Anderson's rotor during fluid displacement. If one were to combine the teachings of Bass and of Gamble with that of Anderson's, one would end up having an addressable array inside the enclosed rotor. Since a glass bead is not an addressable array nor can an addressable array exist in suspension, it would render at least one of Bass's, Gamble's, or Anderson's methods inoperable. This combination would also render Bass's array inoperable for the following reason. As it is clear in Bass's column 2, lines 28-34, "different monomers may be deposited at different addresses on the substrate during any one cycle." Such deposition during fabrication would be inoperable if the substrate were to be enclosed in Anderson's rotor.

In addition to the incompatibility of the principle of operation discussed above, the Examiner has not articulated any reasoning why one of skilled in the art would combine Anderson with either Gamble or Bass.

Since Anderson's protocol is completely different from Gamble's and Bass's and there is no teaching that the benefits Anderson claims would be applicable to array synthesis where multiple stations are employed and two or more different polymeric ligands are deposited onto a surface at different known locations of the surface.

Because there is no apparent reason for combining the references in the manner asserted by the Office, in addition to the fact that the methods may be rendered inoperable due to the combination, the pending claims are not obvious over Gamble in view of Anderson and Bass and this rejection may be withdrawn.

Finally, newly presented claims 29 to 36 are patentable at least for the reasons provided above.

**CONCLUSION**

Applicants submit that all of the claims are in condition for allowance, which action is requested. If the Examiner finds that a telephone conference would expedite the prosecution of this application, please telephone Bret Field at (650) 327-3400.

The Commissioner is hereby authorized to charge any underpayment of fees associated with this communication, including any necessary fees for extensions of time, or credit any overpayment to Deposit Account No. 50-1078, order number 10040506-1.

Respectfully submitted,

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